

IN THE CLAIMS:

- 1 1. (Currently amended) A system for managing ink information in a computer system
2 having a pen-based input tablet, the system comprising:
 - 3 a pen driver coupled to the pen-based input/display tablet and configured to col-
 - 4 lect and organize the ink information entered at the pen-based input tablet into ink
 - 5 strokes;
 - 6 an ink memory area organized into one or more ink phrase data structures; and
 - 7 an ink manager coupled to the pen driver for receiving the ink strokes, the ink
 - 8 manager having an ink phrase termination engine configured to examine the ink informa-
 - 9 tion collected by the pen driver and, upon detecting the occurrence of an ink phrase ter-
 - 10 mination event, to identify a respective end of an ink phrase to the ink manager,
 - 11 whereby the ink manager stores the ink strokes received prior to the ink phrase
 - 12 termination event in a selected ink phrase data structure and, in response to receiving
 - 13 from the client application a reference context affiliated with the un-recognized ink
 - 14 strokes of the ink phrase, associates the reference context with the ink strokes.
- 1 2. (Original) The system of claim 1 wherein
2 the ink information entered at the pen-based input tablet is associated with a client
3 application, and
4 the ink manager, in response to the occurrence of an ink phrase termination event,
5 is configured to pass the un-recognized ink strokes of the respective ink phrase to the cli-
6 ent application.
- 1 3. (Canceled)

- 1 4. (Currently Amended) The system of claim 1 [3] wherein the ink manager associates
2 the reference context with the un-recognized ink strokes by appending the reference con-
3 text to the selected ink phrase data structure.
- 1 5. (Original) The system of claim 2 wherein the ink phrase termination engine is config-
2 ured to initiate a time-out for each ink stroke and further wherein the termination engine
3 identifies the occurrence of an ink phrase termination event when the time-out expires
4 before the next sequential ink stroke is detected.
- 1 6. (Original) The system of claim 5 wherein the time-out has a value that is settable by a
2 user of the computer system.
- 1 7. (Original) The system of claim 5 wherein the pen-based input tablet has a surface and
2 the ink information generated by the tablet includes out-of-proximity data corresponding
3 to the pen being lifted above the surface of the tablet, and further wherein the termination
4 engine detects the occurrence of an ink phrase termination event upon detecting out-of-
5 proximity data from the tablet.
- 1 8. (Original) The system of claim 2 further comprising:
2 one or more handwriting recognition engines for generating hypotheses based on
3 the ink information entered at the pen-based tablet; and
4 a handwriting recognition manager coupled to both the ink manager and the one
5 or more handwriting recognition engines, the handwriting recognition manager config-
6 ured and arranged to coordinate operation of the one or more handwriting recognition
7 engines, wherein
8 the ink strokes received at the ink manager are passed to the handwriting
9 recognition manager, and
10 the ink manager notifies the handwriting recognition manager of the oc-
11 currence of each ink phrase termination event and, in response, the handwriting

12 recognition manager directs a selected handwriting recognition engine to generate
13 one or more hypotheses for the ink strokes corresponding to the respective ink
14 phrase.

1 9. (Original) The system of claim 8 wherein the handwriting recognition manager in co-
2 operation with the selected handwriting recognition engine employs a word segmentation
3 model to the ink strokes as they are received by the ink manager and, in response to de-
4 termining that a given ink stroke represents a new word, is permitted to issue an ink
5 phrase termination signal to the ink manager.

1 10. (Original) The system of claim 8 wherein
2 the client application is configured to define at least one data entry field for dis-
3 play on the tablet and to establish corresponding boundary coordinates for the at least one
4 data entry field, and
5 the termination engine identifies the occurrence of an ink phrase termination
6 event when an ink stroke or portion thereof is outside of the boundary coordinates for the
7 at least one data entry field.

1 11. (Original) The system of claim 8 wherein the one or more hypotheses are provided to
2 the client application.

1 12. (Original) The system of claim 8 wherein the ink manager
2 in response to receiving from the client application a reference context affiliated
3 with the un-recognized ink strokes of the ink phrase, associates the reference context with
4 the ink strokes, and
5 in response to a request by the client application, returns the affiliated reference
6 context to the client application together with the one or more hypotheses.

- 1 13. (Original) The system of claim 8 wherein, in response to receiving an indication that
2 the client application has consumed the un-recognized ink strokes, the ink manager di-
3 rectes the handwriting recognition manager not to generate one or more hypotheses for the
4 ink strokes.
- 1 14. (Original) The system of claim 8 wherein
2 in response to receiving the un-recognized ink strokes, the client application es-
3 tablishes a corresponding recognition context for the ink strokes, and
4 the handwriting recognition manager receives the recognition context and directs
5 the selected handwriting recognition engine to utilize the recognition context in generat-
6 ing the one or more hypotheses.
- 1 15. (Original) The system of claim 14 wherein the one or more hypotheses generated by
2 the selected handwriting recognition engine utilizing the recognition context from the cli-
3 ent application are provided to the client application.
- 1 16. (Currently amended) A method for managing ink information in a computer system
2 having a pen-based input tablet that may include an integrated display for generating ink
3 information as a pen is moved across the tablet, the method comprising the steps of:
4 receiving the ink information generated by the input tablet;
5 identifying when the pen is lifted from the tablet so as to organize the ink infor-
6 mation into corresponding ink strokes; and
7 organizing the ink strokes into one or more ink phrases as defined by one or more
8 ink phrase termination events; and
9 in response to receiving a reference context from the client application affiliated
10 with the un-recognized ink strokes of the ink phrase, associating the reference context
11 with the ink strokes.

- 1 17. (Original) The method of claim 16 wherein the step of organizing comprises the steps
2 of:
3 examining the ink information to determine whether an ink phrase termination
4 event has occurred; and
5 in response to the occurrence of an ink phrase termination event, segregating the
6 ink strokes received prior to the termination event in a designated ink phrase data struc-
7 ture.
- 1 18. (Original) The method of claim 17 wherein the ink information entered at the tablet is
2 associated with a client application, the method further comprising the step of optionally
3 passing the un-recognized ink strokes of the respective ink phrase to the client application
4 in response to the ink phrase termination event.
- 1 19. (Canceled).
- 1 20. (Currently amended) The method of claim 16 [19] wherein the reference context is
2 associated with the respective ink phrase by appending the reference context to the design-
3 nated ink phrase data structure.
- 1 21. (Original) The method of claim 17 wherein the ink information enter at the tablet is
2 associated with a client application, the method further comprising the steps of:
3 generating one or more recognition hypotheses for the ink strokes of the ink
4 phrase data structure; and
5 passing the one or more recognition hypotheses to the client application together
6 with the respective reference context.
- 1 22. (Original) The method of claim 17 wherein the ink information from the input tablet
2 further includes out-of-proximity data which corresponds to the pen being lifted above a
3 surface of the tablet, the method further comprising the steps of:

4 examining the ink information to detect out-of-proximity data;
5 identifying the occurrence of an ink phrase termination event in response to de-
6 tecting out-of-proximity data.

1 23. (Original) The method of claim 17 wherein the ink information entered at the tablet is
2 associated with a client application, and the client application defines a form for display
3 on the tablet, the form having one or more data entry fields for receiving handwritten in-
4 formation, the method further comprising the steps of:

5 receiving a set of bounding coordinates established by the client application for
6 the one or more data entry fields;

7 comparing the ink information from the input tablet with the bounding coordi-
8 nates of the one or more data entry fields; and

9 identifying the occurrence of an ink phrase termination event in response to de-
10 tecting ink information moving outside of the bounding coordinates for at least one of the
11 one or more data entry fields.

1 24. (Original) The method of claim 17 wherein the computer system includes at least one
2 recognition engine, the method further comprising the steps of:

3 optionally configuring the recognition engine to apply a word segmentation model
4 to the ink strokes as they are organized; and

5 identifying the occurrence of an ink phrase termination event when the word seg-
6 mentation model determines that a given ink stroke is part of a new word relative to an
7 immediately prior ink stroke.

1 25. (Original) The method of claim 17 further comprising the steps of:

2 initiating a time-out mechanism upon receipt of each ink data point; and

3 identifying the occurrence of an ink phrase termination event when the time-out
4 expires prior to receiving a next sequential ink data point.

1 26. (Original) The method of claim 25 wherein the ink information from the input tablet
2 further includes out-of-proximity data which corresponds to the pen being lifted above a
3 surface of the tablet, the method further comprising the steps of:

4 examining the ink information to detect out-of-proximity data;
5 identifying the occurrence of an ink phrase termination event in response to de-
6 tecting out-of-proximity data.

1 27. (Currently amended) A computer readable medium containing executable program
2 instructions for organizing ink information generated by a pen-based input tablet as a pen
3 moves across the tablet, the executable program instructions comprising program in-
4 structions for:

5 receiving the ink information generated by the input tablet;
6 identifying when the pen is lifted from the tablet so as to organize the ink infor-
7 mation into corresponding ink strokes;
8 examining the ink information to determine whether an ink phrase termination
9 event has occurred; **and**

10 in response to the occurrence of an ink phrase termination event, segregating the
11 ink strokes received prior to the termination event in a designated ink phrase data struc-
12 ture; **and**

13 in response to receiving a reference context from the client application affiliated
14 with the un-recognized ink strokes of the ink phrase, associating the reference context
15 with the ink strokes.

1 28. (Original) The computer readable medium of claim 27 wherein the ink information
2 entered at the tablet is associated with a client application, the medium further comprising
3 program instructions for passing the un-recognized ink strokes of the respective ink
4 phrase to the client application in response to the ink phrase termination event.

- 1 29. (Original) The computer readable medium of claim 28 further comprising program
2 instructions for, in response to receiving an indication that the client application has con-
3 sumed the un-recognized ink strokes, blocking recognition of the ink strokes.
- 1 30. (Canceled)
- 1 31. (Currently amended) The computer readable medium of claim 27 [30] wherein the
2 reference context is associated with the ink strokes by appending the reference context to
3 the designated ink phrase data structure.
- 1 32. (Original) The computer readable medium of claim 27 wherein the ink information
2 entered at the input tablet is associated with a client application, the computer readable
3 medium further comprising program instructions for:
4 generating one or more recognition hypotheses for the ink strokes of the ink
5 phrase data structure; and
6 passing the one or more recognition hypotheses to the client application.
- 1 33. (Original) The computer readable medium of claim 32 further comprising program
2 instructions for:
3 in response to receiving a reference context from the client application affiliated
4 with the un-recognized in strokes of the ink phrase, associating the reference context with
5 the ink strokes; and
6 in response to a request from the client application, returning the reference con-
7 text to the client application along with the one or more recognition hypotheses.
- 1 34. (Original) The computer readable medium of claim 32 wherein the client application
2 establishes a recognition context in response to receiving the un-recognized ink strokes of
3 the ink phrase and the program instructions from generating one or more recognition hy-

4 potheses further comprise program instructions for utilizing the recognition context es-
5 tablished by the client application.

1 35. (Original) The computer readable medium of claim 27 wherein the program instruc-
2 tions for examining comprise program instructions for:
3 initiating a time-out mechanism upon receipt of each ink data point; and
4 identifying the occurrence of an ink phrase termination event when the time-out
5 expires prior to receiving a next sequential ink data point.

1 36. (Original) The computer readable medium of claim 35 wherein the ink information
2 further includes out-of-proximity data which corresponds to the pen being lifted above a
3 surface of the tablet, and the program instructions for examining further comprise pro-
4 gram instructions for:
5 examining the ink information to detect out-of-proximity data;
6 identifying the occurrence of an ink phrase termination event in response to de-
7 tecting out-of-proximity data.